

DISCUSSION OF THE AMENDMENT

Claim 1 has been amended by incorporating the subject matter of Claim 5 therein, combined with a Markush group for the reactive functional group of vinyl monomer (b), as supported in the specification at page 8, lines 9-12, and by changing "made of" to --comprising--. Claims 2-5 have been canceled. Claim 6 has been amended, analogously to the amendment to Claim 1. Claims 7-10 have been canceled.

New Claims 11-26 have been added. Claim 11 is supported in the specification at page 4, line 12. Claim 12 is supported in the specification at page 5, lines 11-16. Claims 13 and 15-18 are supported in the specification at page 8, lines 9-12. Claim 14 is supported in the specification at page 9, line 2. Claims 19-26 correspond to Claims 11-18, respectively, but depend or ultimately depend on Claim 6.

Finally, "characterized by" has been deleted in Claim 1.

No new matter is believed to have been added by the above amendment. Claims 1, 6, and 11-26 are now pending in the application.

REMARKS

Applicant thanks the Examiner for the courtesy extended to Applicant's attorney and Applicant's assignee's representative during the interview held August 22, 2006, in the above-identified application. During the interview, Applicant's attorney explained the presently-claimed invention and why it is patentable over the applied prior art. The discussion is summarized and expanded upon below.

As recited in above-amended Claim 1, an embodiment of the present invention is a fluoro-resin powder coating composition comprising a composite fluorinated copolymer (A) having a core/shell structure wherein core particles comprise a fluorinated copolymer (A'), and their surfaces are covered with a resin having a glass transition temperature higher than that of the core particles, constituting shells, wherein the glass transition temperature of the core particles of the composite fluorinated copolymer (A) is from -40 to 50°C, and the glass transition temperature of the resin constituting the shells is from 60 to 150°C, wherein the resin constituting the shells comprises a (meth)acrylate resin, and wherein the composite fluorinated copolymer (A) is a powder obtained by emulsion-polymerizing, in the presence of the fluorinated copolymer (A') containing polymerized units based on (a) a fluoroolefin and polymerized units based on (b) a vinyl monomer having at least one reactive functional group selected from the group consisting of a carboxyl group, an epoxy group, a hydrolysable silyl group, a hydroxyl group and an amino group, a radical polymerizable monomer mixture comprising (c) a (meth)acrylate having a reactive group which reacts with the reactive group of the above (b), to form a bond, thereby to obtain an aqueous dispersion of a composite fluorinated copolymer (A), and separating and drying the composite fluorinated copolymer (A) from the aqueous dispersion.

As recited in above-amended Claim 6, an embodiment of the present invention is also drawn to particles for a powder coating material comprising the above-recited composite fluorinated copolymer (A) of Claim 1.

The rejection of Claims 1-10 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over, U.S. 6,680,357 (Hedhli et al), is respectfully traversed.

Hedhli et al discloses five so-called “composition aspects,” each drawn to an acrylic modified fluoropolymer, where in each case the fluoropolymer is either a homopolymer or a copolymer, wherein all of the monomer units are derived from a fluorine-containing monomer, such as vinylidene fluoride and hexafluoropropylene, and wherein the acrylic portion of the fluoro-based polymer contains monomer residues having functional groups capable of entering into reactions whereby the acrylic portion becomes crosslinked with the proviso that the functional groups do not include solely carboxyl acid groups (column 3, line 7 - column 4, line 37). It is thus clear that the acrylic modified fluoropolymers of Hedhli et al contain a fluoropolymer core and an acrylic shell, which can be verified by the examples therein, wherein the fluoropolymer acts as a seed (column 12, line 37ff). Thus, Hedhli does not disclose or suggest that their fluoropolymer core contain a particular reactive group as required by the present claims that would react with their acrylic shell. Indeed, Hedhli et al’s fluoropolymer core contains no units derived from vinyl monomers containing a reactive group according to the present claims. Nor is there any disclosure or suggestion in Hedhli et al that their acrylic shell have a glass transition temperature higher than that of their fluoropolymer core, let alone that their respective glass transition temperatures be 60 to 150°C and -40 to 50°C, as required by the present claims.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1-10 under 35 U.S.C. § 103(a) as unpatentable over U.S. 6,232,372 (Brothers et al) in view of U.S. 5,576,106 (Kerbow et al) or U.S. 5,030,667 (Shimizu et al), is respectfully traversed.

Brothers et al discloses, as a second embodiment therein, a composition comprising a plurality of multicomponent particles wherein the melt fabricable fluoropolymer component of each particle is present as a core coated with a high temperature resistant polymer binder (column 2, lines 1-5), which binder is composed of a polymer which is film-forming upon heating to fusion, is thermally stable and has a sustained use temperature of at least about 140°C (column 4, lines 58-61), preferred binders including polysulfones, polyethersulfones, polyimides, polyamide imides and polyamic salts (column 5, lines 1-12).

Kerbow et al discloses grafting compounds containing polar functional groups onto the surface of fluorocarbon powders.

Shimizu et al discloses an aqueous dispersion comprising composite colloidal particles each having a core made of a copolymer comprising 99-100% by weight of tetrafluoroethylene and 0-1% by weight of a fluorine-containing olefin which is copolymerizable with tetrafluoroethylene, and a fluorinated (meth)acrylate-based shell having a glass transition temperature of at least 50°C (column 3, lines 53ff).

The Examiner's rationale for combining Brothers et al with either Kerbow et al or Shimizu et al is that Brothers et al does not disclose a (meth)acrylate resin shell having the requisite glass transition temperature, and thus relies on Kerbow et al or Shimizu et al for allegedly supplying relevant disclosure to cure this deficiency. However, the deficiencies in the prior art are more serious than suggested by the Examiner.

Thus, Brothers et al neither discloses nor suggests an acrylic shell for their core/shell embodiment, let alone not disclosing a glass transition temperature for their shell. Kerbow et al's fluoropolymers do not appear to contain units derived from vinyl monomers having at

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least one reactive functional group as now required by the present claims. Shimizu et al neither discloses nor suggests the presence of reactive groups in either their tetrafluoroethylene copolymer-based core or their shell.

In sum, without the present disclosure as a guide, it is not clear why one of ordinary skill in the art would combine Brothers et al with either Kerbow et al or Shimizu et al. But even if combined, the result would not be the presently-claimed invention.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claim 1 under 35 U.S.C. § 112, second paragraph, is respectfully traversed. Indeed, the rejection is now moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that the rejection be withdrawn.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

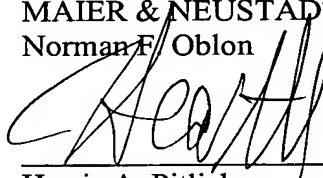
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